Southeastern Climate

Regional Climate Summary

The southeastern United States has a humid, subtropical climate, which appeals to a large number of people and businesses for numerous reasons. A combination of human-caused and natural climate variability plays a role on the climate of the Southeast. Extensive variety of extreme weather and climate events occur across the region, including heat waves, cold temperature outbreaks, flooding, drought, winter storms, severe storms, tropical storms, and tornadoes[4].

Climate Trends and Projections

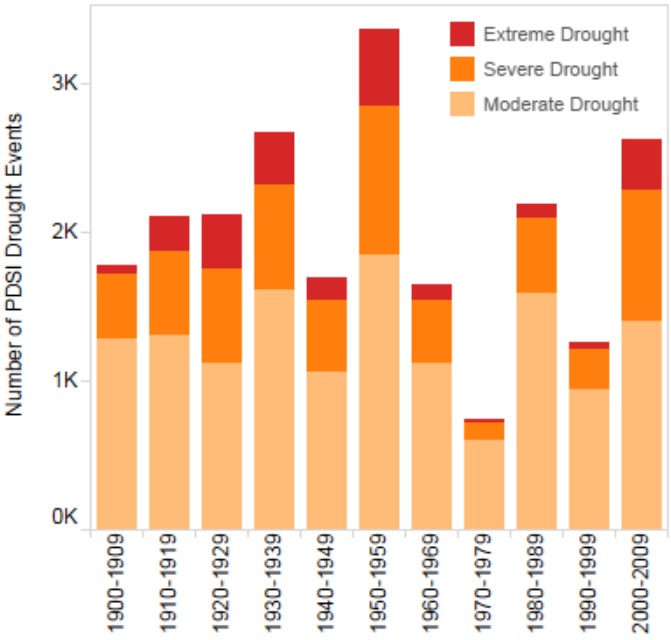
Insufficient Rainfall—Lack of rainfall can lead to short- and long-term drought conditions.

- Over the past few decades, there has been a decreasing trend in rainfall during the summer months.
- Most climate models simulate that the decrease in summer rainfall may continue into the future, with the largest decreases (more than 10%) projected to occur in southern Florida and the western states of the region.
- Mean annual precipitation is expected to decrease across the western portion of the Southeast[7].

Above Average Temperature—Above average temperatures can negatively impact crop yields and introduce new pests and pathogens.

- Temperatures have steadily increased across the Southeast since the 1970s, especially during the summer and along the Gulf and Atlantic coasts.
- There has been an increase in the number of days where maximum temperature exceeds 95°F and minimum temperature exceeds 75°F.
- Climate models agree that annual temperatures will continue to increase in the future, with an average annual increase of 3-5°F by 2041-2070. Simulated changes for winter and spring are between 2.5-5°F, 3.5-6°F during the summer, and 3-5°F during the fall.
- Days with maximum temperatures exceeding 95°F are predicted to increase, with more than 35 additional days occurring in central Florida and 20-30 additional days across the rest of the region[7].

Southeastern Drought Frequency & Severity by Climate Division



Source: NOAA NCDC

Excess Rainfall—Above average rainfall and extreme rainfall events (i.e., thunderstorms) can produce short- and long-term flooding conditions locally and regionally.

- Extreme rainfall events have occurred more frequently across the Southeast over the past twenty years.
- Across the region, there has been a long-term upward trend in fall seasonal rainfall.
- Most climate models simulate that extreme rainfall events (more than 1 inch) will continue to increase.
- Above average precipitation events are expected to continue to increase during the fall (+15% along the Gulf Coast), winter (+15% across central Florida and northern states), and spring (+15-20% across the northern and interior states) months[7].

Southeastern Climate: Trends, Projections, and Natural Variability

Tropical Storms—Hurricanes and tropical storms produce a multitude of impacts ranging from damaging winds, inland flooding, coastal surges, and sometimes an isolated tornado.

- Tropical storms most frequently make landfall along the North Carolina Outer Banks, southern Florida, and southeast Louisiana.
- There has been a slight increase in the frequency of tropical storms in the Atlantic, and the number of major hurricanes (category 3-5) has increased over the past few decades[5].
- Climate models project that the frequency of major hurricanes will likely increase, while the number of tropical storms will decrease[6].


Source: USDA Flickr

Natural Variability

Natural climate variability can cause temperature and precipitation to deviate above or below average over a few weeks to a season.

- **El Niño-Southern Oscillation:** Sea surface temperature (SST) deviations across the equatorial Pacific Ocean determine its two phases. El Niño comes from warmer than normal SSTs, while La Niña comes from cooler than normal SSTs. El Niño tends to cause above-normal precipitation across the southern states during the winter months and can reduce the probability of extreme winter temperatures occurring across the South[2]. La Niña may cause below normal precipitation, increase the risk of drought[8], and cause warmer than average temperature conditions over most of the region[2].
- **Arctic Oscillation:** Its positive phase tends to cause above average temperatures in the Southeast, while its negative phase decreases the number of warm days and shifts temperatures cooler[2,10].
- **North Atlantic Oscillation:** Its positive phase can cause warmer temperatures and an increased frequency in rain or snow events[1,3]. Its negative phase causes abnormally cool temperatures across the Southeast[1,9].


Source: USDA Flickr

References

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